

What is claimed is:

1. A replicon derived from a chromosomally integrated transgene capable of expressing at least one foreign gene in plant cells, possessing
5 replication origins with substantial sequence homology to any plus sense, RNA virus capable of infecting plants, wherein the replicon is dependent for replication on a helper virus possessing trans-acting replication proteins, the replication proteins
10 having substantial sequence homology to any plus sense, RNA virus capable of infecting plants.

2. A replicon of Claim 1 wherein expression of the foreign gene is capable of being regulated.

3. A replicon of Claim 1 wherein the foreign
15 gene of said replicon is located 5' to the 3' replication origin.

4. A replicon of Claim 1 wherein said replicon codes for a viral sequence upon which a helper virus is dependent in trans.
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5. A replicon of Claim 4 wherein said replicon codes for a viral movement protein.

6. A replicon of Claim 5 wherein said viral movement protein is located 3' to the 5' replication
25 origin.

7. A replicon of Claim 5 which is capable of moving the replicon-encoded genes away from the site of infection and is capable of systemic expression.

8. A replicon of Claim 6 wherein the foreign gene of said replicon is located 5' to the 3' replication origin.

5 9. A replicon of Claim 7 wherein said movement and expression away from the site of infection is regulatable.

10. A replicon of Claim 7 wherein said movement protein is derived from a tobamovirus.

10 11. A replicon of Claim 7 wherein said movement protein is derived from a TMV strain virus.

12. A heterologous protein expressed using the replicon of Claim 1.

13. A heterologous protein expressed using the replicon of Claim 7.

15 14. An RNA sequence expressed using the replicon of Claim 1.

15. An RNA sequence expressed using the replicon of Claim 7.

20 16. A primary or secondary metabolite accumulated in the tissues of a transfected plant as a result of the expression of a foreign gene product coded for by the replicon of Claim 1.

25 17. A primary or secondary metabolite accumulated in the tissues of a transfected plant as a result of the expression of a foreign gene product coded for by the replicon of Claim 7.

18. A transgenic plant wherein a transgene coding for the replicon of Claim 1 is chromosomally integrated into the host DNA.

5 19. A method of expressing a foreign gene in plants comprising:

a) integrating a transgene coding for the replicon of Claim 1 into the host DNA of a plant cell; and

b) infecting the plant cell with a helper virus.

10 20. The method of Claim 19 wherein the helper virus is dependent in trans on the replicon.

21. The method of Claim 19 wherein the helper virus is dependent in trans on the replicon for expression of a movement protein.

15 22. The method of Claim 19 wherein expression of the foreign gene is regulatable.

23. The method of Claim 19 wherein expression of the movement protein is regulatable.

20 24. The method of Claim 19 wherein said movement protein is derived from a tobamovirus.

25. The method of Claim 19 wherein said movement protein is derived from a TMV strain virus.